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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/684,058	10/06/2000	Ching -Hsiang Chan	64600-070	1605

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EXAMINER

JORGENSEN, LELAND R

ART UNIT	PAPER NUMBER
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2675

DATE MAILED: 01/10/2003

4

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/684,058

Applicant(s)

CHAN ET AL. 

Examiner

Leland R. Jorgensen

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 06 November 2002.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1 - 17 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☐ Claim(s) \_\_\_\_\_ is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)                      4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)                      5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_                      6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Drawings***

1. In view of applicant's Response to Office Action filed 6 November 2002, the objection to the drawings is withdrawn.

### ***Claim Rejections - 35 USC § 103***

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

3. Claims 1, 2, 4, 8, 10, 12 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Murakami et al., USPN 4,988,837, in view of Flowers et al., USPN 5,038,142, and Plesinger, USPN 5,146,354.

### **Claims 1 and 10**

Claim 1 describes a touch screen mounting assembly for a liquid crystal display (LCD) panel. Claim 10 describes a method for fabricating a touch screen mounting assembly for use on a LCD panel.

Murakami teaches a touch screen for a liquid crystal display (LCD) panel. The touch screen has a backlight panel [back light 60] for supplying illumination to the LCD panel [display panel 50] and for mounting to the frame [non-metallic case 80]. The backlight panel has a front surface opposite to a back surface that faces the bottom of the frame. Pressure-sensitive transducers [sensing section 10] are mounted above the front surface. The liquid crystal display

panel is positioned juxtaposed to the front surface of the backlight panel sandwiching the plurality of pressure-sensitive transducers between the backlight and the LCD panel.

Although Murakami teaches a substantially rectangular frame with cavity for mounting a backlight panel [non-metallic case 80], Murakami does not specifically teach all the details of the mounting assembly as described in claims 1 and 10.

Plesinger teaches a touch screen mounting assembly for a liquid crystal display (LCD) panel. The mounting assembly has a bottom frame [backframe 120] having a substantially rectangular-shaped cavity therein for mounting a backlight panel [104] thereto. The bottom frame is equipped with a plurality of attachment means. Plesinger, col. 5, lines 14 – 55; and figure 5.

Plesinger teaches a backlight panel [light pipe 104] for supplying illumination to the LCD panel and for mounting to the bottom frame, the backlight panel having a front surface [108] opposite to a back surface that faces the bottom frame. Plesinger, col. 3, lines 46 – 57; col. 5, lines 28 - 32; and figures 2 and 5.

Plesinger teaches a liquid crystal display panel [112] positioned juxtaposed to the front surface of the backlight panel. Plesinger, col. 3, lines 46 – 57; and figure 2.

Plesinger teaches a top frame for holding the plurality of attachment means against the bottom frame by a plurality of tabs mounted peripherally on the top frame. Plesinger, col. 5, lines 28 – 55.

It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the mounting assembly as taught by Plesinger with the touch screen assembly as taught by Bowman. Plesinger teaches, “Liquid crystal displays (LCD's) are commonly used in

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portable computer systems, televisions and other electronic devices.” Plesinger, col. 1, lines 12 –

14. Plesinger notes, “Backlighting the LCD panel has become the most popular source of light in portable computer systems because of the improved contrast ratios and brightnesses possible.”

Plesinger further teaches,

The object of the present invention is to provide uniformity of brightness of the LCD panel by reducing heat transfer from the light source to the LCD panel. The exposed portions of each light source are wrapped with reflective insulating material, such as white felt, to maintain the optimally efficient operating temperature of the backlight and to reduce thermal radiation to the LCD panel. The backlight is separated from the LCD panel by a relatively wide air gap which effectively blocks conductive heat transfer from each light source to the LCD panel. The LCD panel is also enframed with metal so that the resulting metal frame shields against electromagnetic interference (EMI), adds rigidity to the LCD panel, and serves as a heat sink which prevents a temperature gradient across the LCD panel.

Plesinger, col. 2, lines 5 – 19.

Plesinger, however, does not teach that each of the plurality of attachment means have a compressible springs and such that the plurality of compressible springs bias the LCD panel toward the bottom frame.

Flowers teaches a plurality of compressible springs [beam springs 5] in a frame assembly to hold a touch panel. Flowers, col. 2, lines 40 – 58.

It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the compression springs as taught by Flowers with the touch screen mounting assembly for a LCD panel as taught by Plesinger and Murakami. Flowers invites such combination by teaching the advantages of such a spring.

In the present invention, the problems are solved by directly supporting the entire mass of the display screen or display element itself on springs. The springs are made relatively stiff and are so mounted as to provide essentially unidirectional or uniaxial freedom of motion only. The stiffness of the springs limits the excursion

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of the supported display device to a single axis over very small latitude which makes the assembly robust enough for withstanding stresses of use and physical shipment of the assembly.

Flowers, col. 3, lines 30 – 40. Flowers invites one to use its assembly and method for any number of displays, including an LCD display.

Briefly, in the current invention, any desired electro-optical display such as a cathode ray tube (CRT), a cold plasma display screen, a liquid crystal display (LCD), light emitting diode displays (LEDs), electroluminescent panels, incandescent or neon bulb panels or any similar "electro-optic" display device is supported directly upon a plurality of beam springs.

Flowers, 2, lines col. 40 – 47.

#### **Claim 2**

Flowers and Plesinger teach that the bottom frame is equipped with four attachment means situated at four distant corners of the bottom frame. Flowers, figures 1 and 2; and Plesinger, figure 2.

#### **Claims 4 and 12**

Plesinger teaches that one of the two fastening means is fastened to the bottom frame while the other fastening means are fastened to the top frame. Plesinger, col. 5, lines 14 – 55; and figure 5.

#### **Claim 8**

Plesinger teaches a protective film. Plesinger, col. 3, lines 2 – 4.

#### **Claim 13**

Plesinger teaches fastening the two fastening means to fastening tabs provided on an outer periphery of the bottom frame and the top frame, respectively. Plesinger, col. 5, lines 14 – 55; and figure 5.

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4. Claims 3, 5 - 7, 9, 11, 14, 16, and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Murakami et al., in view of Flowers et al. and Plesinger as applied to claims 1 or 10 above, and further in view of Bowman et al., USPN 4,675,569.

### **Claims 3 and 11**

Claims 3 and 11 each add that the plurality of attachment means each consist of a threaded stud having a shaft portion and two end portions, with a coil spring situated on and encircling the threaded stud, with two fastening means each engaging one of the two end portions.

Neither Murakami, Flowers, nor Plesinger teach this detail.

Bowman teaches a touch screen mounting assembly. Bowman, col. 1, lines 5 –9. Bowman teaches that the mounting assembly supports a touch sensitive screen having a plurality of pressure-sensitive transducers. Bowman, col. 3, lines 19 – 25. Bowman teaches a plurality of attachment means, each consisting of a threaded stud having a shaft portion and two end portions. A coil spring is situated on and encircles the threaded stud. Two fastening means each engage one of the two end portions. Bowman, figure 4.

It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the attachment means as taught by Bowman with the touch screen mounting assembly taught by Murakami, Flowers, and Plesinger. Bowman invites such combination by teaching,

The present invention relates to touch input displays and more particularly to a mounting assembly for attaching a force sensitive touch screen to a video display, such as a cathode ray tube or CRT.

Bowman, col. 1, lines 6 – 9. Bowman adds,

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The mechanical requirements for a piezoelectric touch screen display are not, however, simple. The piezoelectric transducers must be incorporated into an assembly which is substantial enough to maintain the alignment of the touch screen components relative to the face of the CRT. The assembly must also be substantial enough to withstand the repeated pushes which will occur as part of the normal system operation.

At the same time, the mounting assembly must not itself inhibit the movement of the push plate toward or away from the face of the CRT.

Bowman, col. 1, line 63 – col. 2, line 5. Bowman concludes,

The present invention is a mounting assembly for a piezoelectric touch screen which will minimize resistance to movement of a push plate toward or away from the face of a CRT while resisting shifting of the push plate in any plane parallel to the face of the CRT.

Bowman, col. 2, lines 8 – 12.

#### **Claims 5 and 16**

Bowman teaches pressure-sensitive transducers, each mounted to a distant corner on the front surface of the panel. Bowman, col. 3, lines 20 – 23; and figure 1.

#### **Claim 6**

It is inherent that the plurality of pressure-sensitive transducers described in Bowman are each in electrical communication with a pressure-sensing circuit through a wiring. Bowman, col. 3, lines 26 – 27.

#### **Claims 7 and 17**

Bowman teaches that the plurality of pressure-sensitive transducers are piezoelectric sensors. As shown in figure 1, a sensor 38 is mounted at each distant corner of the panel. Bowman, col. 3, lines 20 - 23 and figure 1.



**Claims 9 and 14**

Bowman teaches that the pressure-sensitive transducers are mounted by adhesive means.  
Bowman, col. 3, lines 20 - 23.

5. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Murakami, in view of Flowers et al., Plesinger, and Bowman et al. as applied to claims 10 and 11 above, and further in view of Garwin et al., USPN 4,511,760.

**Claim 15**

Claim 15 describes that the method further comprises the steps of providing a pressure-sensing circuit; receiving signals from the plurality of pressure-sensitive transducers by the pressure-sensing circuit; and calculating the pressure at each distant corner of the bottom frame to determine a location on the LCD panel that was touched. Bowman teaches providing a pressure-sensing circuit and receiving signals from the plurality of pressure-sensitive transducers by the pressure-sensing circuit. Bowman, col. 3, lines 20 – 36.

Bowman does not teach calculating the pressure at each distant corner of the bottom frame to determine a location on the panel that was touched. Bowman, however, invites one to use Garwin, USPN 4, 511,760.

The techniques employed for processing the piezoelectric signals to determine where the push plate was touched are beyond the scope of this invention. One example of a technique that might be used is taught in U.S. Pat. No. 4,511,760, which is assigned to the assignee of the present invention.

Bowman, col. 3, lines 31 – 36.

Garwin teaches calculating the pressure at each distant corner of the bottom frame to determine a location on the panel that was touched. Garwin, col. 4, lines 39 – 66.

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It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the technique of Garwin to calculate the signals received from the pressure-sensitive transducers of Bowman to find the point on the screen that was touched.

### ***Response to Arguments***

6. Applicant's arguments with respect to claims 1 - 17 have been considered but are moot in view of the new ground(s) of rejection.

### ***Conclusion***

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Depew et al., USPN 6,215,476 B1, teaches a touch sensitive digitizer integrated into a flat panel display. Depew teaches the digitizer sandwiched between a backlight unit and a mother glass which may include an LCD display. Depew, col. 5, lines 38 – 43; col. 7, lines 3 – 6; and figure 9.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Leland Jorgensen whose telephone number is 703-305-2650. The examiner can normally be reached on Monday through Friday, 7:00 a.m. through 3:30 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steven J. Saras can be reached on 703-305-9720.

**Any response to this action should be mailed to:**

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Commissioner of Patents and Trademarks  
Washington, D.C. 20231


**or faxed to:**

**(703) 872-9314 (for Technology Center 2600 only)**

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive,  
Arlington, VA, Sixth Floor (Receptionist).

Any inquiry of a general nature or relating to the status of this application or proceeding  
should be directed to the Technology Center 2600 Customer Service Office, telephone number  
(703) 306-0377.

lrj



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